

Figure 1. Chemical synthesis of Oligonucleotides

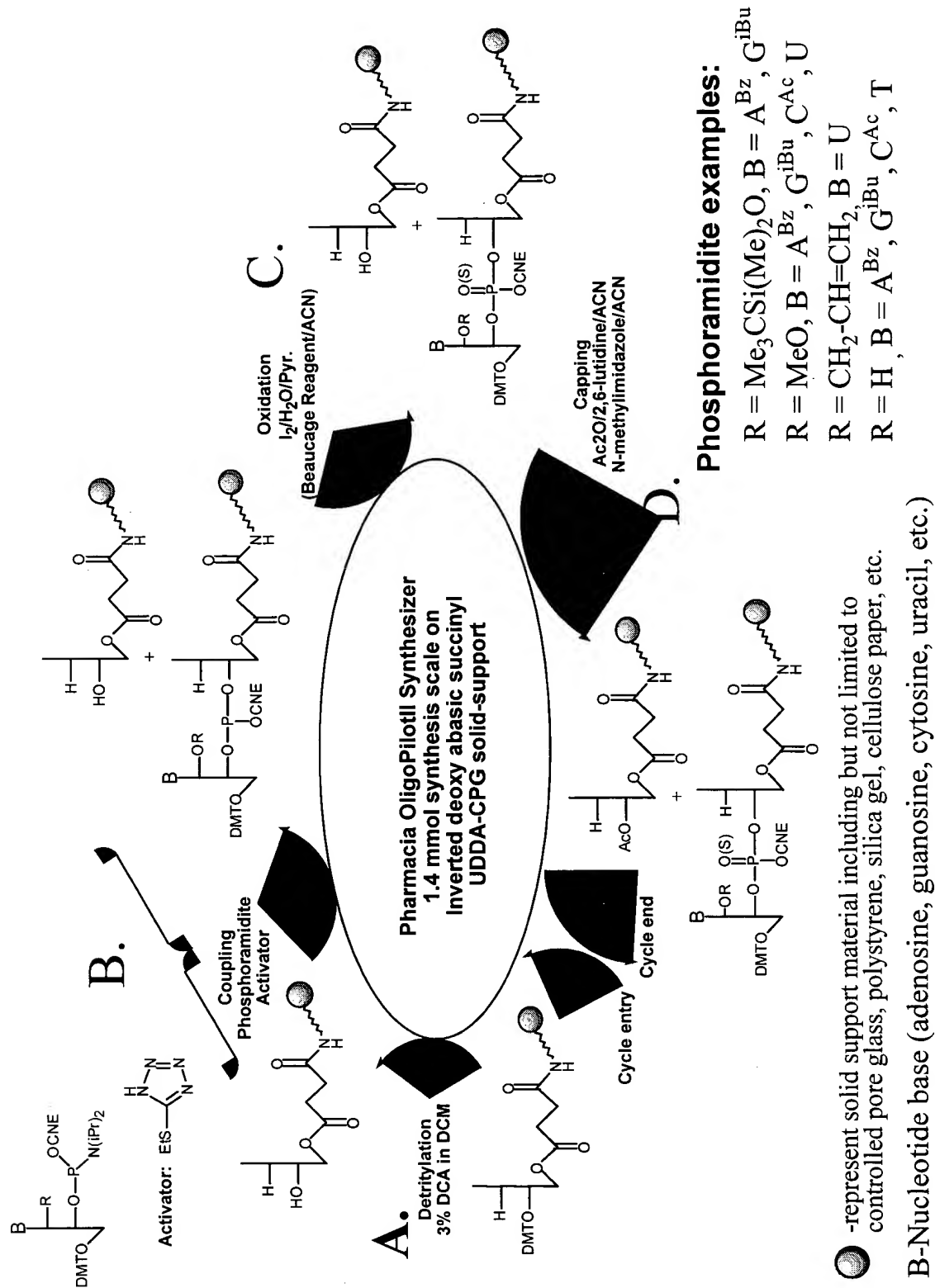
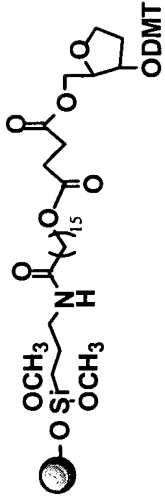
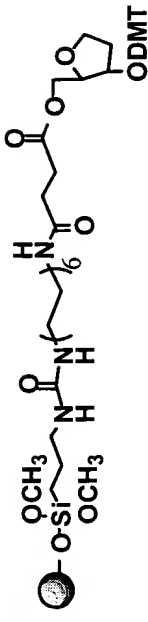
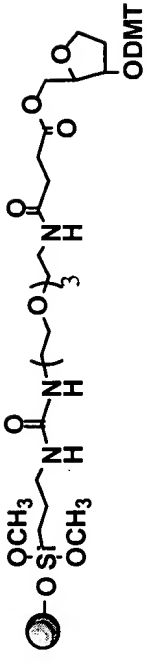


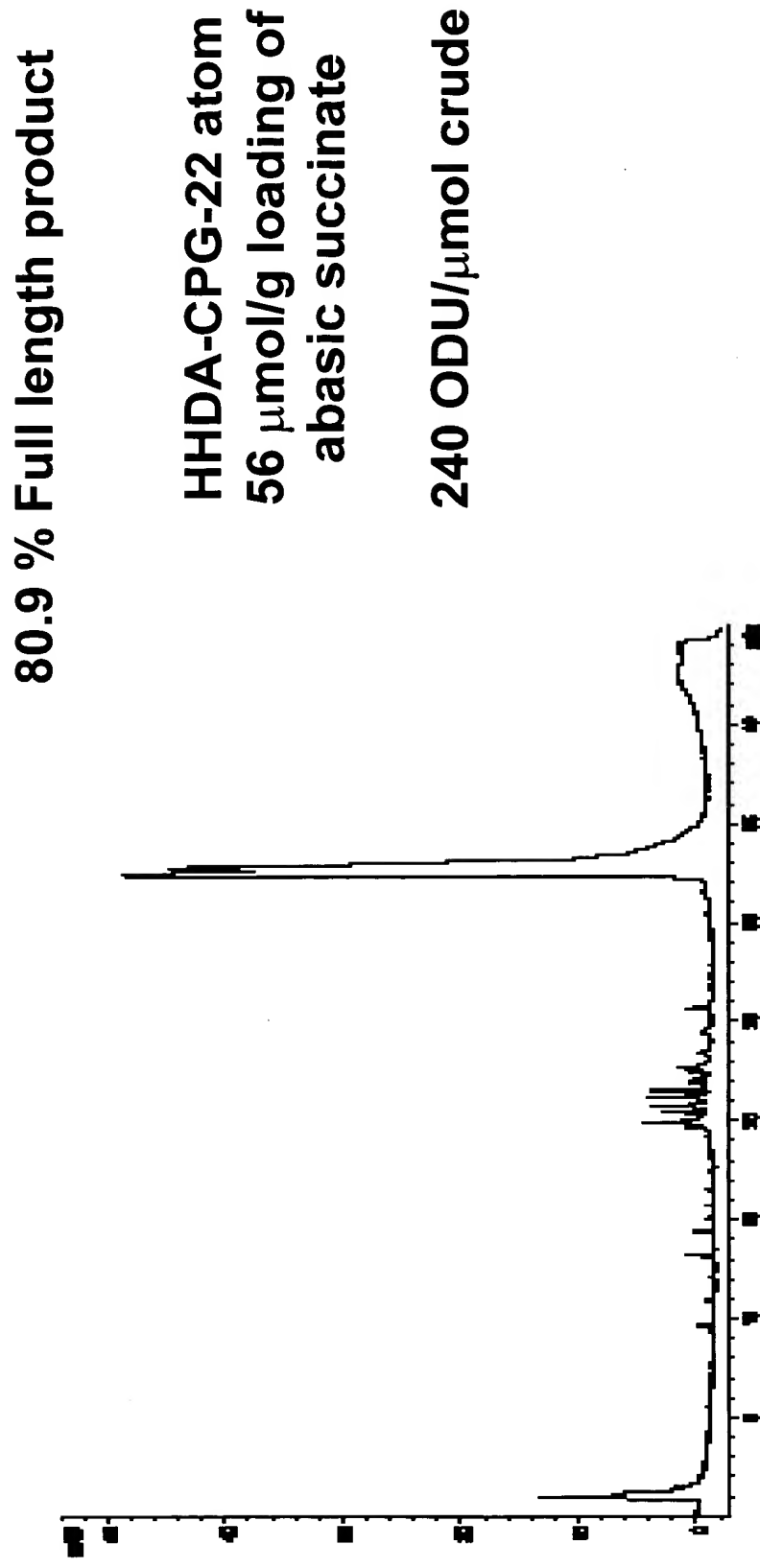
Figure 2

Chemical Structure	Alias	Product Yield	Efficiency
	22 atom CPG, HDDA CPG	230 - 240 ODs/umol	80%
	20 atom CPG, UDDA	270 - 280 ODs/umol	78-80%
	19 atom CPG, PEG CPG	280 - 290 ODs/umol	85-87%

ODMT - dimethoxytrityl

 -represents controlled pore glass (CPG)

Figure 3. HPLC chromatograph of Ribozyme synthesized using CPG Linked HHDA Spacer



**Ribozyme Sequence: g<sub>s</sub>a<sub>s</sub>g<sub>s</sub>u<sub>s</sub>ugcUGAuGaggccgaaaggccGaaAgucugB**

Lower 2'-O-methyl modification

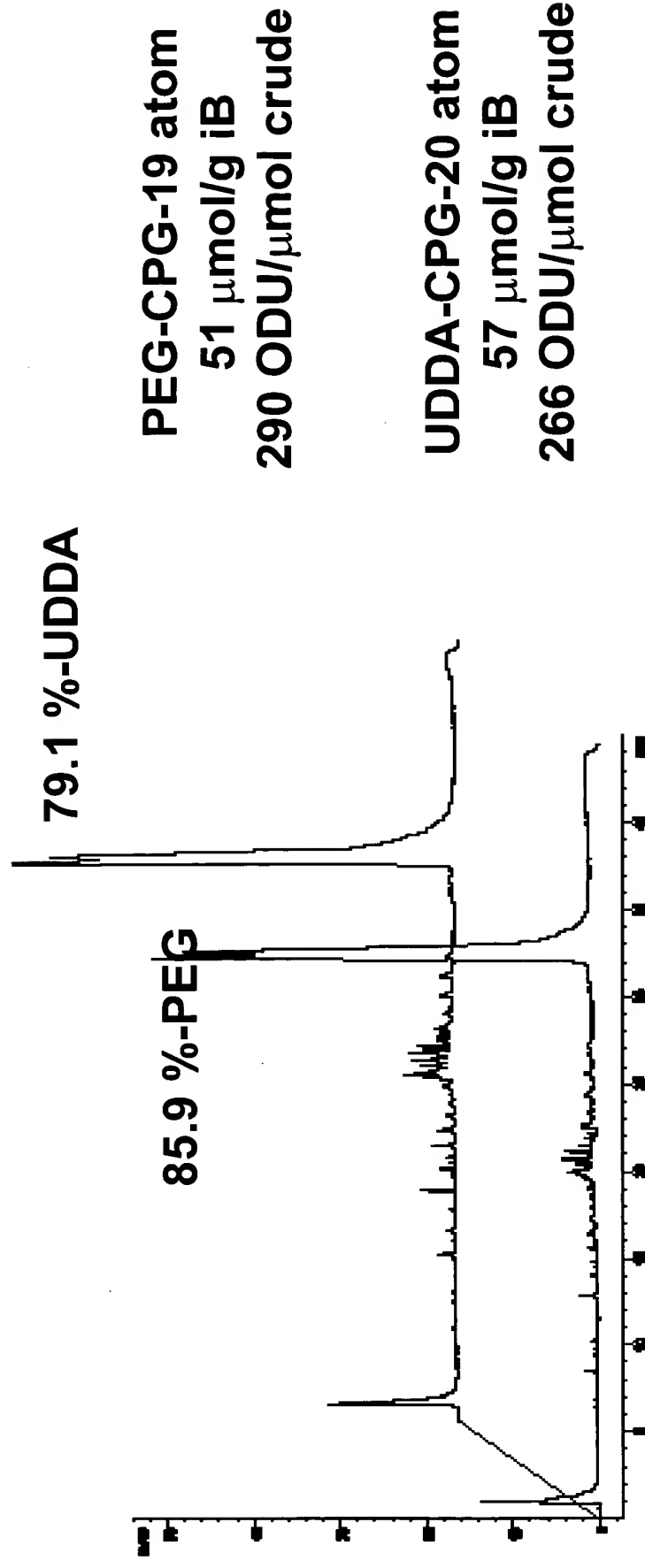
U-2'-C-allyl

S-phosphorothioate

B-3'-3' inverted abasic moiety

A<sub>3</sub>G-adenosine, guanosine

Figure 4. Synthesis of Ribozyme on CPG linked PEG  
and UDDA Spacers



**Ribozyme Sequence:**  $\text{g}_s\text{a}_s\text{g}_s\text{u}_s\text{ugcUGAuGaggccgaaaggccGaaAgucugB}$

Lower 2'-O-methyl modification

U-2'-C-allyl

S-phosphorothioate

B-3'-3' inverted abasic moiety

A, G-adenosine, guanosine

Figure 5. Synthesis of CPG linked HHDA CPG  
(22 atoms) Spacer

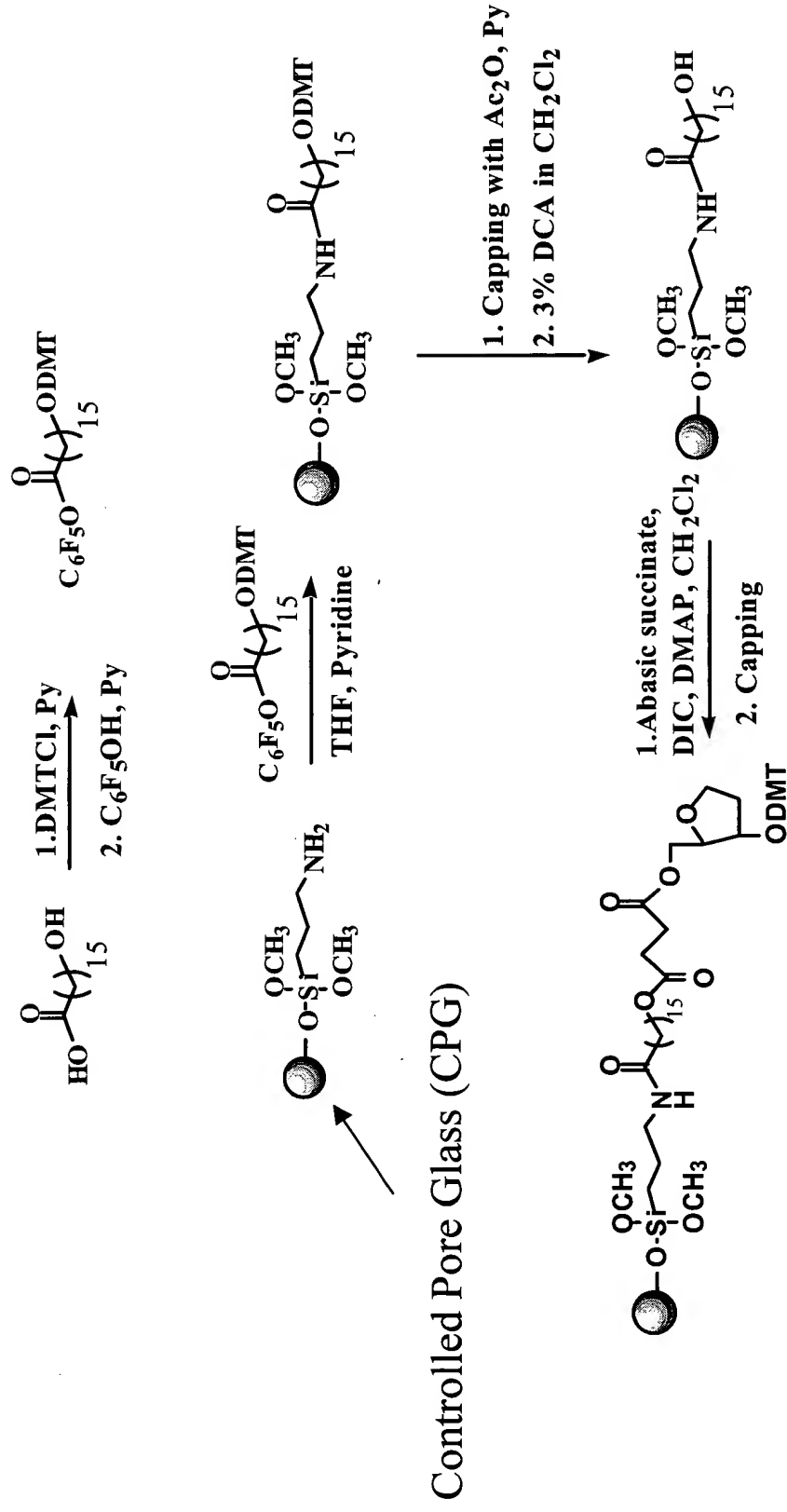


Figure 6. Synthesis of CPG-Linked PEG  
(19 atoms) Spacer

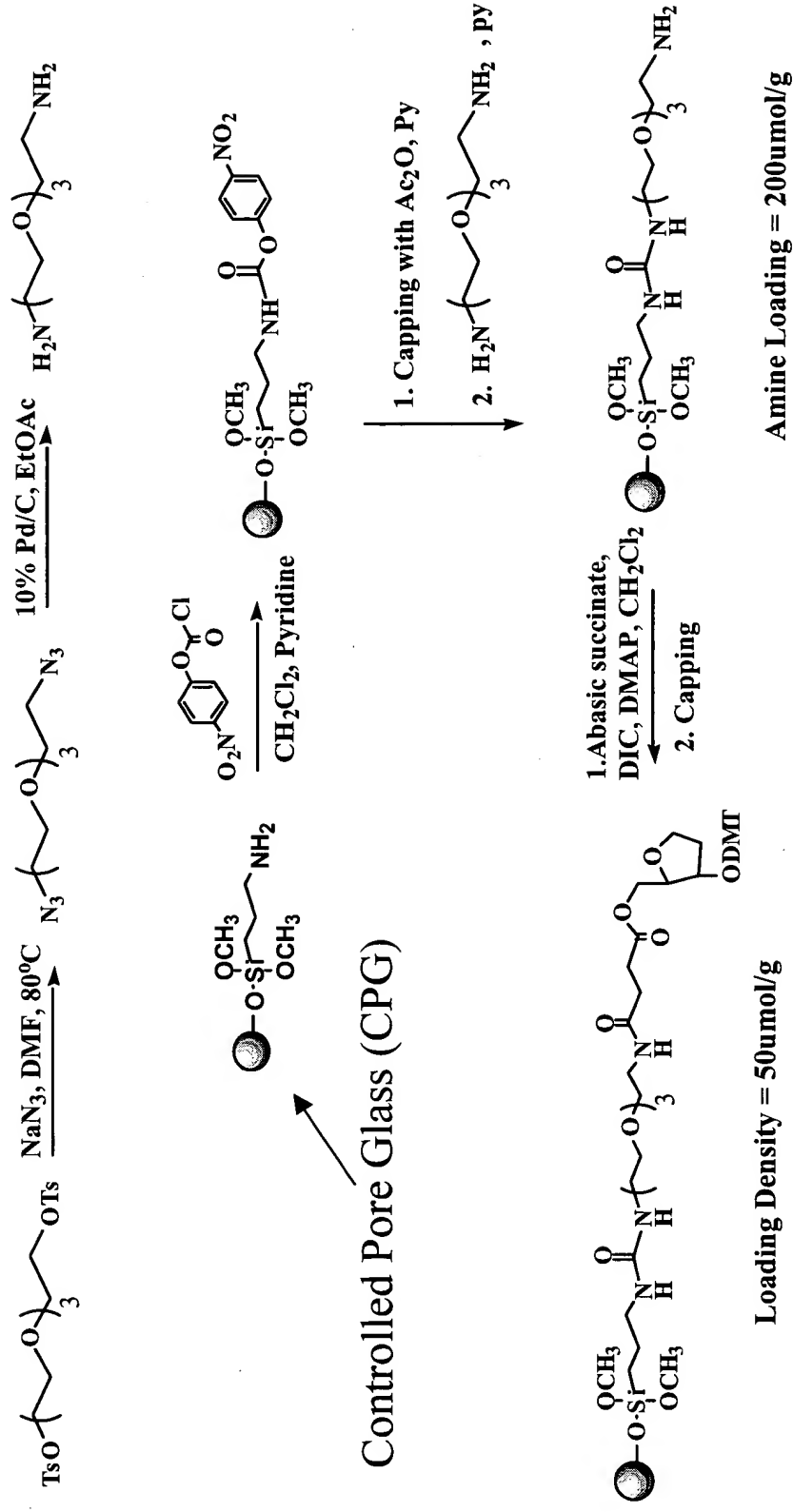
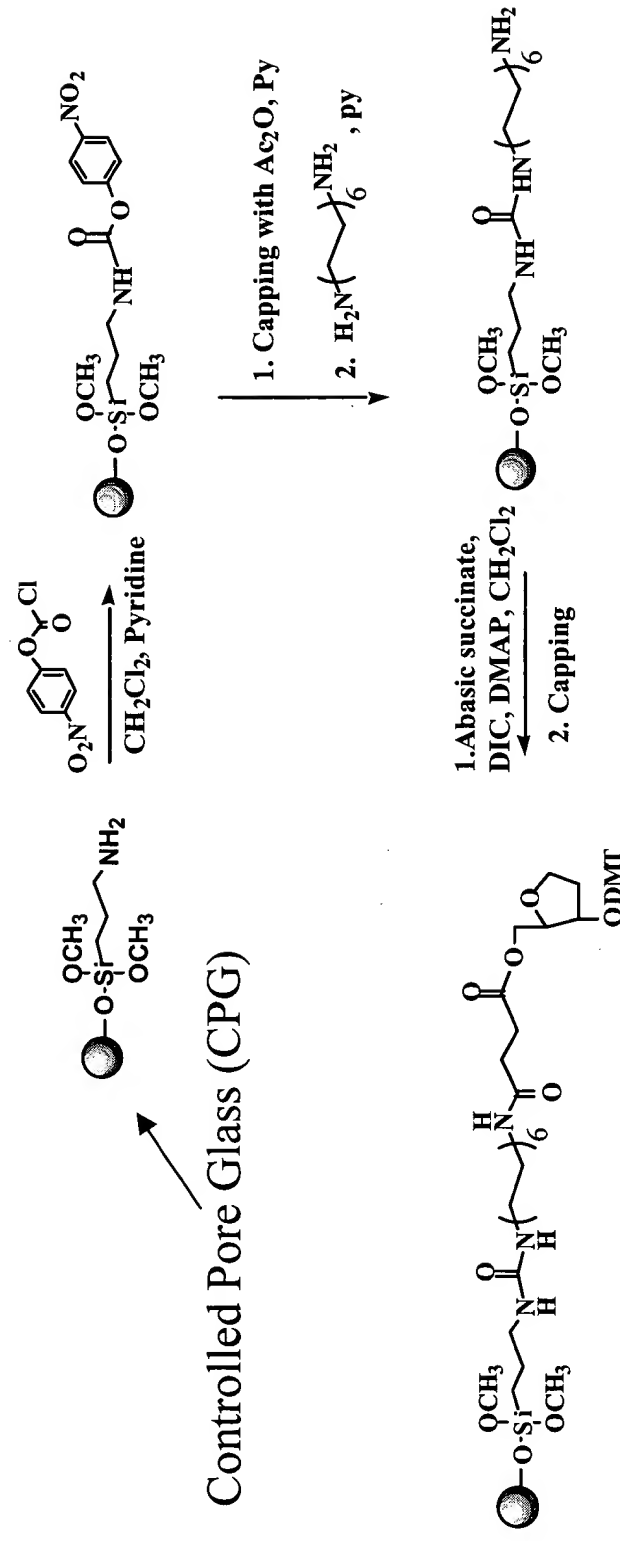
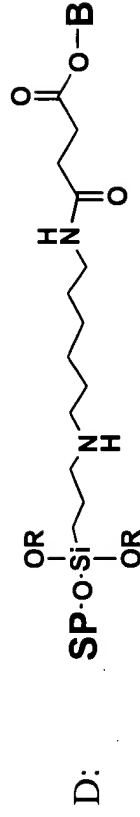
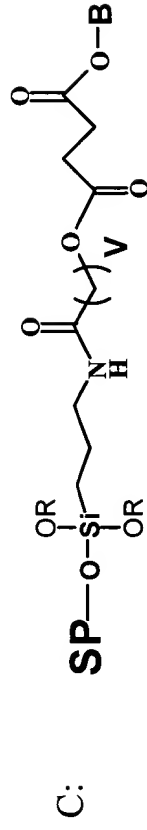
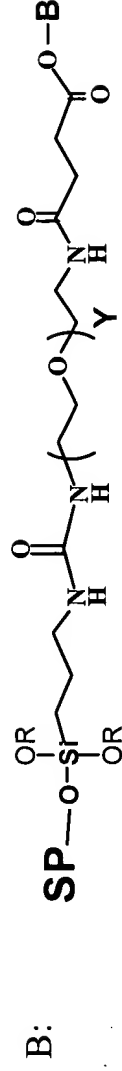
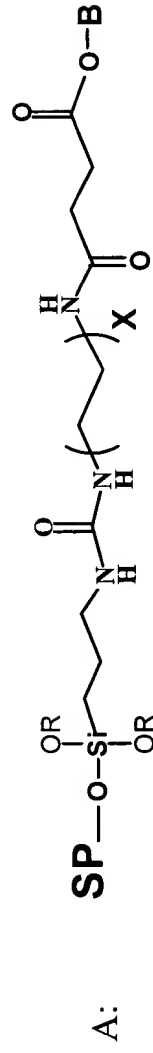


Figure 7. Synthesis of CPG linked UDDA Spacer



Loading Density = 56umol/g

Figure 8. General Chemical formulae for Spacers



SP- solid support

B- terminal chemical group

X- integer between 2 and 6 (i.e. 2, 3, 4, 5, 6)

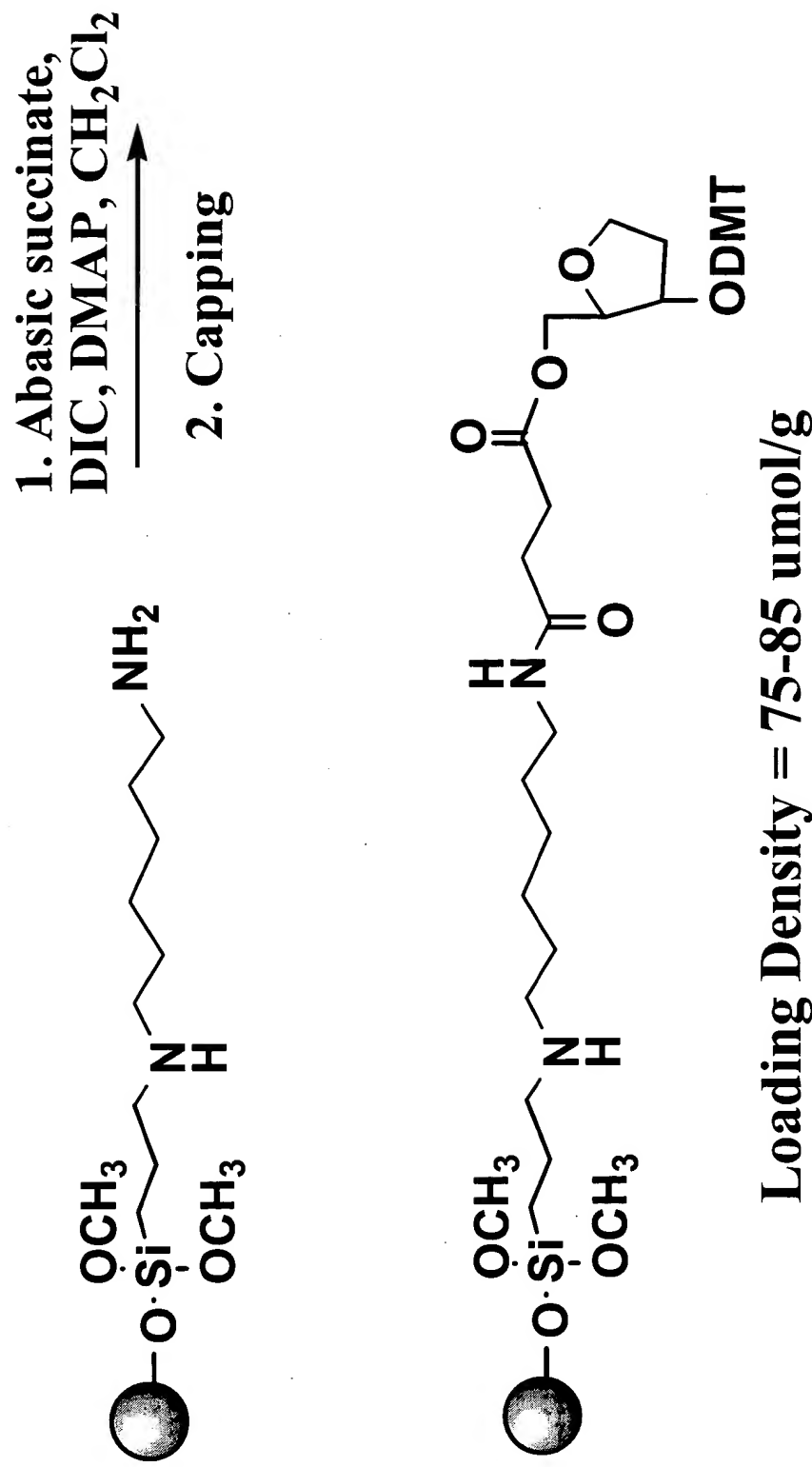
Y-integer between 1 and 4 (i.e. 1,2,3,4)

V-integer between 5 and 16 (i.e. 5,6,7,8,9,10,11,12,13,14,15,16)

R- represents a moiety selected from a group comprising alkyl, alkenyl, alkynyl, aryl, alkylaryl, carbocyclic aryl, heterocyclic aryl, and the like



**Figure 9: Synthesis of abasic derivatized C9 CPG**



**Figure 10: CGE of Crude Angiozyme™ Synthesized on C9 CPG**

